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Articles On Manual Therapy

SYSTEMS OF MECHANICAL THERAPEUTICS: A COMPARATIVE STUDY.

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The systems of mechanical therapeutics most worthy of consideration are, in the order of seniority, massage, Swedish gymnastics and osteopathy. It is the purpose of this article to inquire what are the real differences between osteopathy on the one hand and massage and Swedish movements on the other.

It will be well to first consider the meaning which we propose to attach to each of the terms of our comparison. "Massage" will be used in a broad sense to include all the procedures which have, with any degrees of accuracy, been called by that name. Its exact meaning can be seen to differ as used by different writers, but its general significance is quite definitely fixed, namely, a system of manipulations, the chief aim of which is to propel the body fluids along their natural channels. The term "Swedish Gymnastics" has a more definite meaning. It stands for the system of exercises and methods of massage first proposed by Ling in 1814, and now taught and practiced in the Royal Central Gymnastic Institute in Stockholm.

We shall not at this point attempt a definition of the word "Osteopathy. We shall, instead, enumerate certain theories and practices which may, with fairness, be taken to represent it as it stands today. Whether all these theories and practices are essential to osteopathy, and whether they are associated with it in the mind of the founder, are questions aside from our present discussion. It is a fact that they are taught and practiced in representative schools and infirmaries, and are matters of every day conversation among practitioners. The order in which they are mentioned is simply the order in which they were gleaned from Osteopathic text books, or were brought to the writer's attention in conversation. The order is not intended to indicate in any way their relative importance.

1. The theory of the existence and importance of nerve centres, and the practice of localizing manipulation upon regions particularly adapted to affect these centres.

2. A belief in the importance of reflexes.

3. The theory that slightly displaced bones cause disease by interfering with nerves and blood vessels; and the practice of attempting to reduce displacements by manipulation.

4. The theory that all spinal curvatures, however slight, may cause other disease; and the practice of treating all classes of curvatures by manipulation.

5. The theory that ligaments thickened as a result of strain or irritation may act as obstructions to nerves or vessels.

6. The practice of giving attention to the feel of muscles, the theory that contractured muscles cause interference with nerves and with vessels and the practice of manipulation of these muscles in order to relax them.

7. The practice of giving particular attention to tender points, especially along the spine.

8. 'The practice of employing manipulations as mechanical stimulants.

9. The practice of employing manipulations to lessen sensibility or activity.

10. The theory that the heart's action can be altered by external manipulation.

11. The theory that the vasomotor mechanism and, through it, the distribution of the blood, can be altered by external manipulation.

12. The practice of employing manipulations in order to reduce congestion or accumulation of fluid.

13. The practice of manipulating the abdominal viscera, for example, the liver, the colon or the gall bladder, for the purpose of moving forward their contents, or of increasing their activity.

14. The fundamental theory that health is synonymous with normal circulation and innervation, and that disease is primarily an interference with these functions.

15. The belief that disease can be treated in accordance with these theories and by these practices more safely and satisfactorily than by the use of drugs.

That each one of the ideas mentioned enters into the platform of every practitioner at some time, and of some practitioners all the time, there can be no doubt. We may, then, take this group of practices and theories as a just representation of osteopathy as it is taught and practiced, and use it as a basis of comparison with other systems. We shall take up, in turn, each of the items of the foregoing statement and inquire, in the case of each, to what extent it is new, and characteristic of osteopathy alone, and to what extent is to be found in the teaching and practice of the other systems considered.

1. THE THEORY OF THE EXISTENCE AND IMPORTANCE OF NERVE CENTRES AND THE PRACTICE OF LOCALIZING MANIPULATIONS UPON REGIONS PARTICULARLY ADAPTED TO AFFECT THESE CENTRES.

The reader need not be reminded that the existence of nerve centres is one of the fundamental facts of modern physiology. It is not, however, with physiology that we wish to make the comparison. The status of centres in the thinking of scientific students of massage and Swedish gymnastics may be fairly represented by the following citations:

Dr. Lee, of Philadelphia, in stating the educational requirements of a good masseur, mentions "the leading facts of anatomy, such as the position of the various organs, and the position and course of the larger arteries, veins and nerves, and such facts of physiology as the function of the various organs, the course of the circulation and the general process of nutrition." These, together with the technic of the various kinds of manipulation and a practical dexterity in their application, appear to complete the list. Neither in this summary nor in the subject matter of the standard text books is there any such stress laid upon the knowledge of the part of the nervous system related to a definite organ, as is found in typical osteopathic works.

Occasionally, however, this idea attains a certain degree of prominence, but it is never carried to the same conclusion as in the thinking of the osteopathist. Thus Eccles says, "Massage is not only useful when applied directly to the part affected, for it may be employed as a mechanical stimulant over the vasomotor centres controlling the vascular condition of the part affected." This important principle seems to have been put to no practical use. Dr. G. H. Taylor believes that nervous diseases of all varieties depend on obstacles to healthful nutrition of the brain and spinal cord, but to restore this nutrition he depends largely upon mechanical vibrations.

Dr. Liljewalk, in a report to which we shall again refer, implies that the region of the sacrum is connected particularly with the lower urinary tract. The parallel idea, so common in osteopathic literature, that the neck bears a similar relation to the larynx, and certain parts of the back to the viscera, does not seem to be mentioned. For example, the treatment used by Wide for nasal catarrh is what is called "root-nose-shaking," a procedure which he believes to act by shaking the mucus from the membrane.

Graham cites, as something of a curiosity, the treatment used by Dr. Meirelles in a case of eclampsia nutans. In this case there were nodding moverments of the head, clonic in character, following each other with great rapidity, except during sleep, when they ceased. "It occurred to Dr. Meirelles that irritation along the spine might have some effect in re establishing the equilibrium of the circulation in the centres of origin of the motor nerves whose dynamic functions were affected. He therefore rubbed the spine from above downward and vice versa with great rapidity and considerable force from the cervical to the lumbar region, making greater pressure in the cervical and dorsal regions than elsewhere." The result was a prompt and permanent disappearance of the symptoms. Dr. Alexis Ferykovy, of the Austrian army, reports forty cases of intermittent fever treated by massage of the back; but Graham, in quoting this report, remarks that general massage would probably have had a greater effect.

A report by Dr. Murrel furnishes the most striking illustration of the mental habit of the masseur and osteopathist in regard to this point. The case is one of paraplegia, due to catching cold. He treated the case by massage of the limbs. As an after thought he adds this sentence: "I think it right to mention, though I do not know that it has any direct bearing on the case, that at one time an abscess developed in the lumbar region." This last detail, mentioned by Dr. Murrel simply in the interest of accuracy, would be a most important factor in the thinking of an osteopathist in regard to this case. To this lumbar region, he would have directed his first examination and the majority of his treatment, while the limbs would have received comparatively little attention. He desires to influence "the centres of the motor nerves whose dynamic functions were affected."

2. A BELIEF IN THE IMPORTANCE OF REFLEXES.

Like the principle of nerve centres, the fact of the existence of reflexes is a part of the common store of physiological knowledge. Its relation to the theory of osteopathy is much more vital than its relation to the more strictly mechanical theory of the other systems which we are considering.

Thus Dr. Bueler describes the following as one of the secondary effects of abdominal massage. The reflex effect of massage is shown by contraction of the involuntary muscular tissue of the intestines which follows stimulation of the abdominal parietes. Mr. Treves, in commenting on the possibility of causing peristalsis in this manner, mentions the fact that the skin of the abdominal wall is supplied from the last seven dorsal nerves, which also give origin to the splanchnics.

The possibility of a reflex effect often seen by osteopathists is acknowledged by Graham in the following paragraph: "When abdominal manipulation does not relieve painful distention of the stomach by gas, the trapezii muscles should be thoroughly and vigorously kneaded. The rationale of this is clear, owing to the intimate connection between the spinal accessory and the vagus."

3. THE THEORY THAT SLIGHTLY DISPLACED BONES CAUSE DISEASE BY INTERFERING WITH BLOOD VESSELS AND NERVES, AND THE PRACTICE OF ATTEMPTING TO REDUCE THESE DISPLACEMENTS BY MANIPULATION.

As far as the writer has been able to discover, the idea of the fundamental bony lesions, in the sense in which it was put forth by Dr. Still, is practically unique.

It is not difficult to find ideas that present a superficial resemblance but on close examination this resemblance disappears.

Wharton Hood has written a book on "Bone Setting, So-Called," the hero of which explained every joint affection by saying that a bone was out. The osteopathist might find "a bone out" in the case of an affection of the knee joint, but it would not necessarily be one of the bones which enter into that particular joint. Judging by the writer's experience, it would be more likely to be some structure in the vicinity of the spinal origin of the sciatic and obturator nerves.

The following description might apply to procedures carried out by osteopathic practitioners, though it was written of a kind of massage used in the Highlands of Scotland for many years for the prevention and cure of consumption. "The fingers are pressed well under the lower borders of the chest and the false ribs, pulling them steadily outward. An attempt is then made to 'open out' the chest, to evert, that is, the lower ribs and direct forward the xiphoid cartilage." There is nothing in osteopathic theory on which to dispute the wisdom of this manoeuver, provided it was not carried out at the expense of detailed examination of the parts having a more direct physiological relation to the lungs, for example, the spinal origin of the various fibres that form the pulmonary plexus.

Estradere has one paragraph that suggests manipulations similar to those employed by the osteopathist in dealing with lesions of

the cervical vertebrae but it is evident that he considers it purely a local matter. Dr. Rupprict seems to have associated many diseases with "inflammation or irritation of the spine," but as to whether the idea of even slight displacements entered into his thinking, is not clear.

4. THE THEORY THAT ALL SPINAL CURVATURES, HOWEVER SLIGHT, MAY CAUSE OTHER DISEASE, AND THE PRACTICE OF TREATING ALL FORMS OF CURVATURE BY MANIPULATION.

The above theory is simply a corollary from the theory that slight displacements of bones cause disease in even remote parts by interference with nerves and vessels. This sort of displacements are, however, more commonly recognized than the "osteopathic bony lesions" to which a former paragraph especially referred.

The following statement of Eccles would be seconded by most osteopathic writers: "There is little doubt that freedom of movement and treatment by massage are preferable to the employment of heavy supports in cases where it is possible to train the patient to adopt habitually the attitude of least deformity." The treatment employed by Eccles seems to be limited to muscle kneading and movements, and in any but the earliest cases promises little but arrest of further deformity.

Eccles describes, however, the method of Dr. Landerer who employs the same methods to improve the condition of the muscles, but also "uses movements which act more especially upon the spinal column and the frame work of the chest. These resemble the rotation and torsion movements which have hitherto played an important part in the treatment of scoliosis. After this, the spinous processes are acted upon by stroking from behind upward, and by pushing them directly toward the concave side so as to equalize the curve." On paper, this seems like the description of a process quite similar to the osteopathic treatment for the same condition.

5. THE BELIEF THAT LIGAMENTS, THICKENED AS A RESULT OF STRAIN OR OTHER IRRITATION, MAY ACT AS OBSTRUCTIONS TO NERVES OR VESSELS.

This is usually mentioned as a minor detail in a spinal lesion by osteopathic writers. It is mentioned here only for the sake of completeness. Murrell, a writer on massage whom we have already mentioned as careful of details, says that the tender points found in lumbago are due, in all probability, to some morbid condition of the ligaments.

6. THE PRACTICE OF GIVING ATTENTION TO THE FEEL OF MUSCLES; THE THEORY THAT CONTRACTED MUSCLES CAUSE INTERFERENCE WITH VESSELS AND NERVES; AND THE PRACTICE OF MANIPULATING THESE MUSCLES IN ORDER TO RELAX THEM.

Since it is the constant effort of the masseur to promote free circulation in through the muscles, it is not strange that students of massage have observed differences in the feel of muscles and have described the hardened places which are described in osteopathic literature as contractured muscles.

G. Norstrom, of Paris, finds that megrim is not uncommonly associated with inflammatory deposits in the muscles of the neck and head; most commonly in the posterior cervical region. In addition there may be indurations of the subcutaneous cellular tissue and thickening of the nerve sheaths. These deposits, when found, will be much more tender than the surrounding parts. Vretland, also, has satisfied himself of the existence of these deposits and thinks that no physician should attempt to treat neuralgia without searching for them.

Graham, in speaking of the condition of the lumbar muscles in lumbago suggests that the pathology of this affection is coagulation of the contractile substance and adhesion of muscular fibrils. Dr. Haig that has shown when chilling of the surface checks excretion from the skin, diminution in the alkalinity of the blood and retention of uric acid takes place in the tissues beneath. Dr. Graham in another and later paper mentions the involuntary contraction of muscles. This is the explanation found in osteopathic literature of the hardened places which students of all systems have observed. In the literature of massage as a whole, the idea of deposits in the muscle substance is much more common.

7. THE PRACTICE OF GIVING PARTICULAR ATTENTION TO TENDER POINTS, ESPECIALLY ALONG THE SPINE.

In the writings of Murrell, whose plea is constantly for "fine work" as distinguished from "mere rubbing," there are several references to points of unusual tenderness. He speaks of their occurrence in the back in lumbago, and in infantile paralysis and spinal irritation, and in the neck and forehead and temples in megrim. In the last named case, be says that they can be moved by massage, where the symptoms disappear.

8. THE PRACTICE OF EMPLOYING MANIPULATIONS TO ACT AS MECHANICAL STIMULANTS.

The idea of mechanical stimulation, in the thinking of some masseurs, is second only to that of mechanical propulsion of the body fluids. It is most frequently mentioned in the writings of Murrell. One of the features of what he calls "fine work" is the attempt to stimulate, mechanically, the various motor points in order that the muscles may be made to contract by the stimulus conveyed along their nerves. Other writers speak of manipulation of the vagus to control the heart, and the fact that the liver and diaphragm find intestines are stimulated to greater activity by abdominal massage. Dr. Kriviakin reports that massage, in cases of intestinal obstruction, sets up a veritable peristaltic storm. In twenty-three cases of urethritis Liljewalk employed percussion from above downward upon the sacrum. In fifteen of these cases no other treatment was necessary. In eight cases the recovery was not complete. He believes that trembling movements applied on the perineum would have replaced the internal medication to which it was necessary to resort in these last cases.

A considerable part of the improvement observed in patients subjected to osteopathic treatment is apt to appear in the months following the cessation of treatment rather than while it is in progress. This fact is only consistent with the contention of the osteopathist, that his treatment acts by removing obstructions to the natural process of repair, rather than by simple mechanical stimulation.

9. THE PRACTICE OF EMPLOYING MANIPULATIONS TO LESSEN SENSIBILITY OR ACTIVITY.

Judging from the frequent occurrence of the words "inhibition," "desensitizing," and the like in osteopathic literature this idea may be included in our general osteopathic platform. In the writings upon massage and Swedish gymnastics, it is somewhat less common than that of stimulation, but is not unknown.

Thus, Dr. Lee states that by vibration over a nerve, its sensibility is at first heightened and then obtunded. He further says that the ability of massage to relieve pain by producing numbness of the nerves points to it as an agent of great value in the neuralgias. La Grange suggests pressure over the phrenic nerve in case of spasm of the diaphragm, and pressure over the sciatic nerve and lumbar plexus in case of pain in the lower extremities. He also says that in the institute at Stockholm he has observed cramps in the shoulder stopped instantly by pressure over the spinal accessory nerve, and cramping pains in the pelvic organs stopped by pressure over the sacral portion of the sympathetic.

10. THE THEORY THAT THE HEART'S ACTION CAN BE ALTERED BY EXTERNAL MANIPULATION.

Changes in the action of the heart as a result of massage are occasionally referred to. Graham states that light friction of the skin causes acceleration of the heart beat. In his "Recent Developments of Massage" he gives some interesting reports and graphic records of changes in the rate of the heart beat as the result of general massage. Murrell states that in the Central Gymnastic Institute pressure on the pneumogastric nerve is employed for palpitation and cardiac disease. This is more like the osteopathic method of dealing with these conditions than the general massage of Graham.

11. THE THEORY THAT VASOMOTION AND, THROUGH IT, THE DISTRIBUTION OF THE BLOOD CAN BE ALTERED AS A RESULT OF EXTERNAL MANIPULATION.

In the literature of massage this method of affecting the distribution of the blood is entirely subordinated to that of mechanical propulsion to be discussed in the following section. Samnelly says that massage causes an active hyperoemia, either by local or reflex action on vaso-dilators or constrictors. The statement of Eccles that massage over vasomotor centres controls the vascular condition of the part affected by these centres has been quoted in another connection. This observation, however, does not seem to have been commonly made.

12. THE PRACTICE OF EMPLOYING MANIPULATION IN ORDER TO REDUCE CONGESTION OF FLUID.

As has been suggested, the end desired in all the stroking and kneading and rubbing of the masseur is "to cause acceleration of the currents of blood and lymph" and "to force the effete products of inflammation into the open mouths of the lymphatic vessels. "Cervical massage, according to Lee depletes the blood vessels of the brain and scalp, and is of value in all congestions of the brain and its membranes, acting like a copious blood letting, without its pernicious effects.

The purely mechanical nature of this work is emphasized by a paragraph from Murrell. "Kneading is the most important in action on the circulation of the deep seated parts and modifying the process of tissue metabolism. The part is squeezed as one would squeeze out the contents of a sausage." The constantly repeated instruction that the manipulation must be towards the heart is consistent with this point of view.

In dealing with congested areas, whether about sprained joints or in congested headache, or in enlarged lymphatics, one part of the osteopathic treatment comes so near to being identical with massage that the difference is often overlooked. It is probable that the distinction is not always clear even in the minds of osteopathic practitioners. The theoretical difference is this: The masseur aims "to force the effete products of inflammation into the open mouths of the lymphatic vessels." The osteopathist aims to "open the circulation" by relaxing contractured muscles and separating the bones, and by this means to allow the circulation to remove the congestion. No doubt in practice this often becomes a distinction without a difference, but of the two courses only the latter is wholly consistent with the osteopathic ideal of simply opening the way for nature to do the work.

13. THE PRACTICE OF MANIPULATING THE ABDOMINAL VISCERA; FOR EXAMPLE, THE LIVER, THE COLON, OR THE GALL BLADDER, FOR THE PURPOSE OF MOVING FORWARD THEIR CONTENTS OR INCREASING THEIR ACTIVITY.

The procedure belongs naturally to the idea of mechanical propulsion, which is so fundamental in massage. Lee mentions particularly the importance of following the colon from caecum to sigmoid flexure, and makes it clear that the fact that the foecal mass is thus forced along is the reason for the work. Dr. Bueler, in speaking of the effects of massage in constipation, names first the mechanical effect. He states that this is the most important and is not limited to the gastrointestinal contents, but extends also to the large abdominal secretory organs removing obstructions from their duets. Dr. Berne, of Paris says, "Pressure should be exerted over the fundus of the gallbladder so as to induce it to contract and assist the progress of bile towards the intestine. Dr. Harley advocates the use of digital manipulation for the extension of calculi from the gall bladder and bile duct.

All of these processes are found in osteopathic theory and practice, but emphasis is commonly placed upon the fact that they are not curative but palliative measures, and that the ideal treatment is one that will reach the cause which is making the accumulation of intestinal contents or precipitation of bile elements possible.

14. THE FUNDAMENTAL THEORY THAT HEALTH IS SYNONYMOUS WITH NORMAL CIRCULATION AND INNERVATION, AND THAT DISEASE IS PRIMARILY AN INTERFERENCE WITH THESE FUNCTIONS

Prom the days of Asclepiades to the present the fact of the desirability of this free circulation and innervation seems to have been recognized. It is over the means to be adopted for securing this end that schools in medicine have arisen.

Taylor says "ordinary medical practice endeavors to overcome the inertia of nerve centers and conductors by exciting, through specific irritants, their power producing function, compelling the weakened and disabled centers to evolve more power."

For the same purpose the masseur increases the nutrition of the weakened part by mechanically forcing out the waste products and forcing in the fresh nutritive material. For the same purpose the osteopath seeks to discover the point of obstruction or irritation, and, having removed this localized, trust the nutrition of the weakened part to the natural forces working for equilibrium and self-preservation.

15. THE BELIEF THAT DISEASE CAN BE TREATED IN ACCORDANCE WITH THE FOREGOING PRINCIPLES MORE SAFELY AND SATISFACTORILY THAN BY THE USE OF DRUGS.

Such was the tendency of Asclepiades who "renounced almost entirely the use of medicines and attempted to restore the free

movement of the nutritive fluids and atoms by means of rubbing." The following is the claim of Dr. Lee for massage: "It removes one diseased process not by substituting for it another diseased process, as in the case of the operation of internal remedies, but by substituting directly the condition of health." The reader will remember the experience of Liljewalk in treating pelvic disease by work applied to the sacrum.

The following is his comment upon it: "The more one acquires of exact knowledge in physiology; that is, the more one understands the mechanism of vital phenomena, the more one is convinced of the influence and of the importance of mechanical agents in the treatment of disease."

CONCLUSIONS.

I. In so far as osteopathic procedure consists in abdominal manipulations or in kneading of muscles intended to stimulate or to numb the nerves, or press out abnormal deposits, it differs very little from massage, and should be called by that name.

II. That which is new and essential in osteopathy, properly so-called, may be represented in the following:

(1) In theory: The habit of relating disease of tissue with irritation or to malnutrition of the corresponding nerve centers, or disturbance along the nerve path connecting the tissue and the center.

(2) In diagnosis: The practice of searching for the cause of this malnutrition or irritation by detailed examination of the position of the bony structures, the tension or hardness of muscles and the development of the ligaments, all of these within a relatively circumscribed area about the center or in a region known to be physiologically connected with it.

(3) In treatment: The practice of directing the manipulation primarily to the region of the nerve center or to the exact point of discovered irregularity; of limiting the manipulation to such work as is thought necessary to remove the ultimate cause of the disease, and of then trusting restoration of' nutrition and adjustment of normal decrees of activity to the natural regulating mechanism of the body.

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